SolidStandards

Enhancing the implementation of quality and sustainability standards and certification schemes for solid biofuels (EIE/11/218)

D6.1j
National Industry Position Paper
Croatia

Co-funded by the Intelligent Energy Europe Programme of the European Union

The SolidStandards project

The SolidStandards project addresses ongoing and recent developments related to solid biofuel quality and sustainability issues, in particular the development of related standards and certification systems. In the SolidStandards project, solid biofuel industry players will be informed and trained in the field of standards and certification and their feedback will be collected and provided to the related standardization committees and policy makers.

SolidStandards is coordinated by:

WIP Renewable Energies
Sylvensteinstrasse 2
81369 Munich, Germany
Cosette Khawaja & Rainer Janssen
cosette.khawaja@wip-munich.de
rainer.janssen@wip-munich.de
Tel. +49 (0)89 72012 740

About this document

This document is part of **Deliverable 6.1** of the SolidStandards project. It is the National position paper of Croatia. This document was prepared in **June 2013** by:

REGEA
Andrije Zaje 10
Zagreb, Croatia
Velimir Segon, Miljenko Jagarcec
vsegon@regea.org
mjagarcec@regea.org
Tel. +385 1 309 8315

Intelligent Energy Europe

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Foreword

CEN, the European Committee for Standardisation, represented in this consortium by NEN, is interested in gathering the opinions of industry representatives for the development of new standards, the revision of existing standards, and the representation of European interests within international standardisation (ISO) procedures. The SolidStandards project offers an excellent opportunity to collect a large number of viewpoints through direct contact with industry representatives. In addition, a broader, public approach has been applied to collect feedback from industry players other than those participating in trainings. Furthermore, experience gained through the project has been used to provide recommendations to CEN and the solid biofuel community how to cope with new developments on solid biofuel markets.

The findings of this task under WP 6 of the SolidStandards project will be summarised in a final European industry position paper on international standards for solid biofuels.

This report contains the feedback collection and analysis from Croatia.

This national report includes the following:

1. Description of national biofuel markets based on **available data**
2. Description of standardisation activities
3. Description of certification activities
4. Overview of standardisation and certification needs
5. Results of discussion with national mirror committee
6. Summary of national industry needs

The objectives are:

- To explain the industry points of view to standardisation committees
- To initiate and support the development of additional standards (e.g. on biomass storage)
- To increase the practical applicability of standards under development
- To bring European industry viewpoints into on-going CEN and ISO standardisation processes
- To provide the necessary feedback on existing standards in order to facilitate their revision in the future

REGEA has discussed this national industry paper with the national committee of *Croatian Standardisation Institute (Hrvatski zavod za norme, www.hzn.hr)- - Technical Committee 238 on Solid Biofuels* in Croatia.

NEN will consolidate all national papers to one, overall European industry position paper about international standards for solid biofuels.

The final European industry position paper will be presented to CEN/TC 335 and/or ISO/TC 238 and distributed among the members of these technical committees.

1. Description of the national biofuels market of Croatia

1.1. General description of the market

The wood biomass market for energy purposes in Croatia is still in early stages of development except for logwood which has traditionally been used as a source for heating in households. One of the barriers for biomass market development is the lack of financial incentives for investing in wood pellet heating and biomass district heating, but in spite of that woodchips and pellets are gaining on its popularity based on accessibility of cheap biomass boilers from domestic production and development of local pellet production.

Small scale combustion of biomass is by far the most extensive application of bioenergy in Croatia and currently the majority of fuelwood is consumed within the household sector primarily for space and water heating. In areas where the gas grid does not reach, and where there is no district heating system, fuelwood is the main source of primary energy used for heating purposes. Most of this wood is cut from forests especially for energy purposes. Apart from heating, a substantial amount of wood is also used for cooking. Contrary to common practice in many other countries, in Croatia grills are predominantly fuelled by wood, instead of charcoal. Stated reasons for this are the low costs of fuelwood, specific food preparation methods, and tradition.

According to data for 2011 fuelwood contributes with approximately 3,5 % to the total primary energy supply. However, apart from the estimated total consumption on the national level, reliable statistics on fuelwood consumption at municipality levels were not available. In order to fill this information gap, consumption estimates for the municipality level have been produced. The main data source used was the information available from the Central Bureau of Statistics which includes the number and surface of occupied dwellings that use wood as exclusive or primary fuel for space heating.

Large scale production of bioenergy takes place in the industry exclusively. Many companies in the wood industry have a substantial heat demand, in specific sawmills and furniture factories. Most of them produce their own heat, quite often from fossil fuelled boiler systems but some also from their wood resources.

Currently in Croatia there are only two biomass plants utilised for the heating of buildings in operation (in the cities of Gospic and Ogulin) and both are owned and operated by the state forest management company Hrvatske Sume Ltd. However, there are several projects aiming to the building of biomass district heating plants for cities and municipalities which are under implementation phase.

Woodchips production in Croatia is based on privately owned mobile wood-chippers working on forest roads due to low manipulating and transport costs. Woodchips is then on site loaded to trailer trucks and exported to neighbour countries. There are seven private owned bigger chippers in Croatia, all using the same cutting technology (drum).

Croatian pellet market represents the example of development of pellet market and production capacities without any incentive schemes. In terms of consumption it almost doesn’t exists, and current situation imply to lack of national policies, quality assurance and quality control. Even with these unfavourable conditions, pellet production in Croatia has

experienced significant growth in the last couple of years. Production of wood pellets started in a year 2006/07 as a result of fossil fuels prices growth and increased demand for pellets in EU market. Total installed production capacity has increased from 2006 to date as follows:

- 2006: 0 t/y;
- 2007: 17 500 t/y;
- 2008: 140 500 t/y;
- 2009: 212.100 t/y;
- 2011: 276.800 t/y.

However, it is important to mention that most of the produced quantities (estimate is approximately 95%) of pellets in Croatia are currently being exported to other countries.

Table 1. Overview of biomass market in Croatia

Type of organization active on market	**Estimate number of companies active on market**	**Comments**
Solid biofuel producers	8 pellet producers 20+ wood chips producers	*Wood chips producers are all subcontractors to the company Hrvatske šume d.o.o. (Croatian Forests Ltd.), reliable data on their size and quantity are not available*
Solid biofuel trader and/or logistics providers	1	*1 Recently constructed biomass trade and logistics centre, more projects are in implementation phase*
Solid biofuel users: small-medium sized (< 1 MW)	10.000+	*Most households in rural parts of Croatia utilise firewood for heating, data for 2001 available from population census (for 2011 census data still unavailable).* *Some households installed new pellets boilers, however reliable estimations are not available.*
Solid biofuel users: large scale (> 1 MW)	20+	*Mostly wood processing industries which utilise own residues for heating/drying*
Industrial association: *Croatian Association of pellet, briquette and wood biomass producers*	1	
Combustion, gasification or fuel production equipment manufacturers	2 major Several minors	
Certification, inspection or testing bodies	1	*Technical Committee 238*

Laboratory / Research organization	3	1) *Faculty of Forestry – Laboratory&Research* 2) *Forestry Institute – Laboratory&Research* 3) *HEP (Croatian electric utility company) - Laboratory*

Remark: It is possible that a company is active in more than one type of the industry segment

1.2. General figures of the market

Table 2 shows the main data regarding specific pellet producers in Croatia and their production in 2011, based on information received from the Ministry of agriculture of the Republic of Croatia.

According to the data provided within the Statistical Yearbook of the Republic of Croatia for 2011 (published by the Croatian Bureau of Statistics, www.dzs.hr) the total production of fuel wood in Croatia in 2011 amounted to 1.030.000 m^3, with approximately 99% of this being broadleaf wood species. The total production of forest products (including fuel wood) in state owned and privately owned forests in Croatia for 2011 amounted to 4.438.000 m3.

A smaller part of the fuel wood is being chipped, however at the moment there are no reliable data regarding wood chips production in Croatia.

According to the data provided within the publication Energy in Croatia 2011 (statistical yearbook on energy production and consumption published by the Ministry of economy), the primary energy production from fuel wood and biomass for 2011 amounted to 26,74 PJ, which was 14,3% of total of 187,42. The Croatian total primary energy supply in 2011 amounted to 383,65 PJ, of which 19,23 PJ (5,0%) were supplied from fuel wood and biomass. The difference between production and supply from fuel wood and biomass of 7,51 PJ was exported.

Table 1 Overview of installed capacities and pellet production in Croatia, 2011

COMPANY	ADDRESS	CONTACT	START-UP YEAR	TOTAL CAPACITY (t/y)	PRODUCTION IN 2011 (t)
Spačva d.d.	Duga ulica 181 32100 Vinkovci www.spacva.hr	T: +385 32 303 426 F: +385 32 303 414 E:spacva@spacva.hr	2008	**50.000**	0
Mundus viridis d.o.o. **Pogon Gradec**	Ivana Lackovića Croate 1 10000 Zagreb www.mundus-viridis.hr	T: +385 1 272 6600 F: +385 1 272 6602 E: info@mundus-viridis.hr	2010	**10.000**	10.000
Drvenjača d.d.	Pilanska 6 51315 Mrkopalj www.drvenjaca.hr	T: +385 51 830 500 F: +385 51 833 125 E: drvenjaca-mrkopalj@ri.t-com.hr	2007	**7.200**	7.100
Viševicakomp d.o.o.	Kolodvorska bb 53202 Perušić www.visevicakomp.hr	T: +385 53 680 240 F: +385 53 679 022 E: visevica@zg.t-com.hr	2008	**25.000**	21.000
Energy Pellets d.o.o.	Zrinska 18 51300 Delnice www.pellets.hr	T: +385 51 812 113 F: +385 51 812 624 E: energy.pellets@ri.t-com.hr	2008	**28.000**	25.000
Finvestcorp d.d.	Ivana Gorana Kovačića 24 51306 Čabar www. www.finvestcorp.hr	T: +385 51 821006 F: +385 51 821225 E: info@finvestcorp.hr	2009	**20.000**	21.800
Gamauf d.o.o.	Kolodvorska bb	T: +385 34 431 303	2009	**21.600**	20.000

	34543 Poljana www.pelet-gamauf.com	F: +385 34 431 305 E: gamauf@po.t-com.hr			
Šišarka d.o.o.	Ulica 131. brigade 12 32270 Županja	T: +385 32 835 014 F: +385 32 835 031	2009	**50.000**	42.000
Moderator d.o.o.	Podudbina bb 53234 Udbina		2011	**50.000**	0
Pin d.o.o.	Trg kralja Petra Svačića 21 44324 Jasenovac		2011	**15.000**	0
TOTAL				**276.800**	**137.900**

Source: Ministry of agriculture, Republic of Croatia

2. Standardisation activities

2.1. National standardisation activities

The standardisation activities regarding solid biofuels in Croatia are coordinated by the Technical Committee 238 (TC 238) on Solid Biofuels established in December 2011 within the Croatian Standardisation Institute (www.hzn.hr). Currently the following institutions are members of the TC 238:

- Faculty of Forestry, University of Zagreb (member from December 2011)
  - Prof. Željko Zečić is acting President of TC 238
- Ministry of Agriculture of the Republic of Croatia (member from December 2011)
- Croatian Forests Ltd. - Hrvatske šume d.o.o. (member from December 2011)
- North-West Croatia Regional Energy Agency (member from May 2013)

TC 238 has adopted the standards on solid biofuels developed by the European Committee on Standardisation as Croatian standards and has labelled them by adding HRN as a prefix (for example, standard EN 14961-1:2010 is labelled as HRN EN 14961-1:2010 Solid biofuels -- Fuel specifications and classes -- Part 1: General requirements). However, these standards have been adopted in original English language and at the moment the main activity of TC 238 is focused on the translation of the standards Croatian as well as unification of the relevant terminology on solid biofuels. This is especially important since different institutions and organisation have in the past used somewhat different terminology which could result in misunderstandings.

The specific need of TC 238 would be to include a representative of biomass boiler manufacturers, solid biofuel producers and consumer associations within the TC in order to have a point of view from the industry and consumers. This has been attempted various times but without success. As a general conclusion it can be said that one of the main problems regarding implementation of solid biofuels standards in Croatia at the moment there is the lack of human capacity, i.e. lack of persons with a knowledge and understanding of standardisation activities, requirements, benefits and overall philosophy.

2.2. National standards

Currently in Croatia there are no national standards on solid biofuels in addition to the adopted European standards. According to the information from TC 238 there are no plans for additional subjects for standardisation for the next two years.

2.3. Uptake of European standards

Within the framework of the SolidStandards project two workshops for solid biofuel producers have been organised, the first in June 2012 for pellet producers and the second in January 2013 for wood chips producers. During the workshops feedback questionnaires have been distributed and participants were asked to fill in and return them.

However, from over 60 participants in total present at the two workshops only two fully filled questionnaires were received (one for pellets, one for wood chips) and 16 questionnaires were only half-filled or mostly empty. The overall comment from all participants at the trainings was that the questions were very difficult for them to answer.

Thus it can be concluded that the uptake of European standards on solid biofuels in Croatia is still at the very early stage. Part of the explanation for this can be found in the fact that, even though the EN standards were officially adopted as national standards, they are not yet translated in Croatian language. Most of the solid biofuel producers in Croatia are not very familiar with English (especially the technical wording included in the standards), meaning they have very little information on standards and this was one of the main conclusions from the trainings. This is also reflected by the difficulties in filling in the questionnaires they had at the trainings.

3. Certification activities

The total area of forests and forested land in Croatia amounts to 2.688.687 ha, of which 2.106. 917 ha (approximately 78%) are owned by the Republic of Croatia and managed by the state owned company Hrvatske šume Ltd. The company employs about 10.000 workers, and is currently the only company in Croatia to have the FSC certificate in the Combined Forest Management and Chain of Custody category. The company has been actively involved in state owned forests certification from the year 2000, and the current certificate is valid from 2007 to 2012.

According to the available information on official website of FSC, in September 2011 in Croatia a total of 166 companies were registered to have a FSC certificate in the Chain of Custody category. The vast majority of these companies were registered within the wood-processing industry, such as sawmills, parquetted manufacturers, manufacturers of furniture, doors and windows and other wood products. According to the information on official website of PEFC, there are no companies in Croatia to have a PEFC certificate.

The most advanced fuel made from wood in Croatia regarding labeling/certification are wood pellets, mainly due to the fact that over 95% of the national production is exported mostly to EU countries. Due to this, Croatian pellet producers are forced to comply with relevant European and national norms and quality standards of countries where they are exporting their pellets and several Croatian producers has obtained quality labels (e.g. Pellet Gold, ENPlus, DIN plus). According to the information available from the European Pellet Council, at the moment two Croatian pellet producers have obtained the ENplus certificate, namely:

- Drvenjaca d.o.o., Fuzine;
- Moderator d.o.o., Udbina.

At the moment there are no national ENplus certification bodies in Croatia. There are several laboratories providing services of solid biofuels product testing, the most important being:

- Laboratory of Faculty of Forestry, University of Zagreb
- Laboratory of Forestry institute, Jastrebarsko
- Laboratory of Hrvatska elektroprivreda d.d. (Croatian electric utility company, owned by the state)

4. Standardisation and certification needs

The results presented in this chapter are based on the feedback received from two training events organised for solid biofuel producers in Croatia. Over 60 questionnaires were distributed and in total 18 were received back, with only 2 of them fully filled. The distribution of the participants who filled the questionnaire is shown in the following figure.

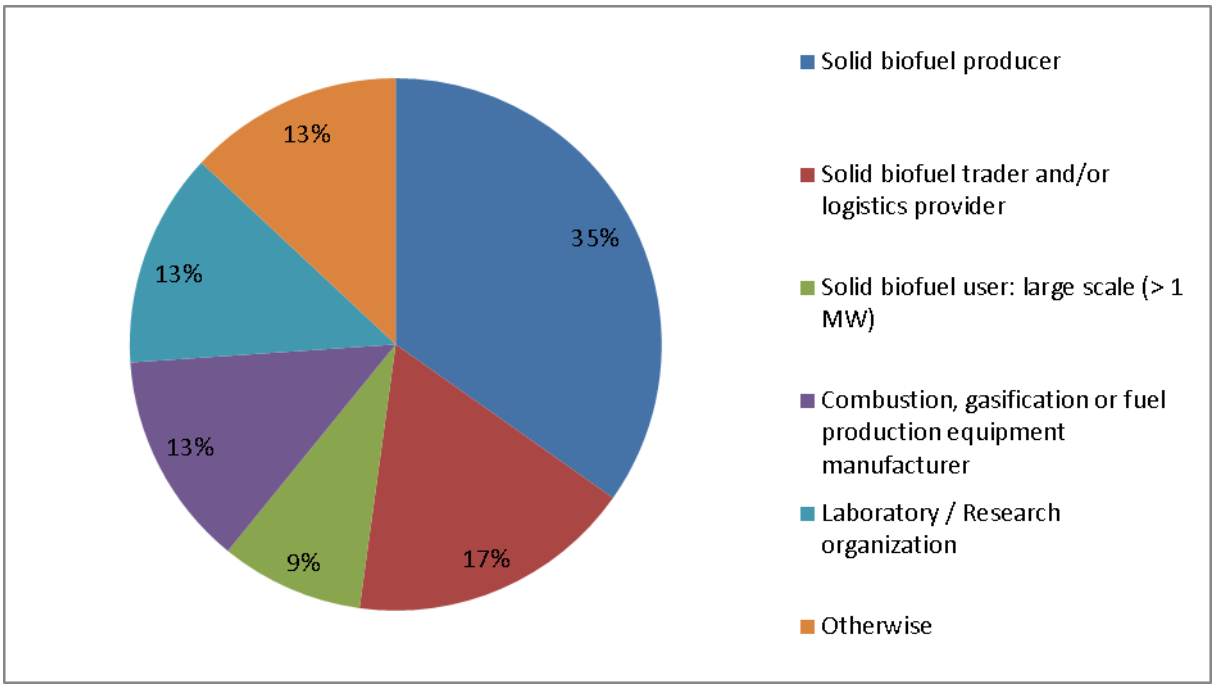

Figure 1. Distribution of participants who filled in the SolidStandards questionnaire

Based on the responses, 8 persons (44,4%) stated that they were not involved in the CEN standardisation process, while 10 persons (55,6%) stated that they were involved, mainly through the activities of the TC238 and REGEA. Of the 8 not involved, 6 mentioned that they would like to get involved.

4.1. Feedback collection about standards for transport/storage

Several questions within the questionnaire were related to the transport/storage quality issues and relevant standards. Specifically, the following is an overview of the questions and corresponding answers from training participants in Croatia:

1) Quality issues during transport and logistics are mainly relevant for pellets. Do you think that quality issues in pellet transport and logistics are sufficiently addressed in EN 15234?

   Total answers: 8
   Yes: 6 (75%)
   No: 2 (25%)

2) Are you aware of the Austrian standard ÖNORM M 7136 on pellet transport and storage?

   Total answers: 13
   Yes: 5 (38,5%)
   No: 8 (61,5%)

3) Do you think that this kind of standard is also needed in your country or at EU level?

   Total answers: 5
   Yes: 5 (100%)
   No: 0

4) Are you aware of certification systems (e.g., offered by German DINCERTCO or EN plus) for pellet logistics and transport companies?

   Total answers: 12
   Yes: 4 (33,3%)
   No: 8 (66,7%)

5) Do you think that this kind of certification would also be helpful in your country or at EU level?

   Total answers: 4
   Yes: 4 (100%)
   No: 0

6) Are you aware of the Austrian standard ÖNORM M 7137 on pellet storage silos and storage rooms for small end-users?

   Total answers: 13
   Yes: 2 (15,4%)
   No: 11 (84,6%)

7) Do you think that this kind of standard is also needed in your country or at EU level?

   Total answers: 2
   Yes: 2 (100%)
   No: 0

8) Are you aware of certification systems (e.g. offered by German DINCERTCO) for pellet storage rooms and silos for small end-users?

   Total answers: 11
   Yes: 1 (9,1%)
   No: 10 (90,9%)

9) Do you think that this kind of certification would also be helpful in your country or at EU level?

   Total answers: 1
   Yes: 1
   No: 0

10) Do you think that there should be standards on health and security aspects for pellet storage at the end-users? If so, could you also indicate where the risk(s) occur?

Answers:

Dust explosion:	4
Off-gassing:	4
Self-ignition:	4
Fungi spores:	4
Other:	2
No, because:	0

4.2. Feedback collection per type of biomass

Several questions within the questionnaire were related to different types of solid biofuels (pellets, wood chips). Specifically, the following is an overview of the questions and corresponding answers from training participants in Croatia.

Questions related to pellets

1) In case your company produces industrial pellets: do you think that the classification system in EN 14961-1 is useful for the description of the quality of the pellets?

Total answers: 3
Yes: 3
No: 0

2) Do you think that fuel specifications according to EN 14961-2 match the needs of the market?

Total answers: 4
Yes: 4
No: 0

3) Do you agree with the requirements (threshold values) defined in EN 14961-2?

Total answers: 3
Yes: 3
No: 0

4) Do you think that three quality classes for wood pellets are enough, too many or too few?

Total answers: 4
Enough: 3
Too many: 1
Too few: 0

5) Have you already been producing pellets according to a quality standard or a quality certification scheme?

Total answers: 1
Mentioned standards/certification schemes:
ÖNorm M 7135
DIN plus
EN plus

6) Could you indicate the importance of the quality standard or a quality certification scheme, by giving a rating between 1 (not important) and 5 (very important)?

Total answers: 2
Importance rated as 5 in both answers

7) Do you think that an integrated quality assurance system for production, trade and delivery of pellets (as defined in EN 15234-2) is necessary and useful?

Total answers: 4
Yes: 4
No: 2

8) Do you think that fuel quality assurance according to EN 15234-2 is realizable?

Total answers: 2
Yes: 2
No: 0

Questions related to wood chips

1) The future ISO 17225-1 includes only one property table for wood chips and hog fuel. Do you agree with the proposed combination in one table, with stating only the traded form separately: wood chips (produced with sharp tools) or hog fuel (crushed by blunt tools)?

Total answers: 4
Yes: 3
No: 1

2) The future ISO 17225-1 includes only one particle size table for wood chips for industrial use (acc. to EN 14961-1) and wood chips for non-industrial use (acc. to EN 14961-4). Do you agree with the proposed combination in one table (see table on top)?

Total answers: 7
Yes: 7
No: 0

3) Do you agree with the following proposed particle sizes for inclusion in the future ISO 17225-1 standard on fuel specifications of wood chips: P16, P31, P45, P63, P100 and P300 (see table on top)?

Total answers: 5
Yes: 5
No: 0

4) Should there be separate particle size requirements for forest chips (needles, increased amount of fines), stem wood or industrial wood residues and used wood?

Total answers: 6
Yes: 5
No: 1

5) Do we need the property class for fines like F25+, ≥ 25 % fines (< 3,15 mm), to be able to classify e.g., forest residues?

Total answers: 5
Yes: 4
No: 1

6) Do we need a maximum cross sectional area in EN 14961-1?

Total answers: 4
Yes: 2
No: 2

7) Do we need a maximum cross sectional area in EN 14961-4?

Total answers: 4
Yes: 2
No: 2

8) Do we need to have net calorific value as received as a normative property?

Total answers: 5
Yes: 3
No: 2

4.3. Feedback collection about quality certification

Very few information was received regarding quality certification issues and within the received questionnaires there were no suggestions or stated needs for new subjects for quality certification schemes.

4.4. Other standardisation and certification needs

Within the received questionnaires there were no suggestions or stated needs for new subjects for other standardisation or certification issues.

5. Results of discussion of feedback collection with national mirror committee

The discussion of issues regarding solid biofuels standardisation status and activities in Croatia as well as collection of feedback implemented in this position paper was organised with prof. Željko Zečić, Ph.D., who is acting as president of Croatian Technical Committee 238 on solid biofuels, formed within the Croatian Standardisation Institute *(Hrvatski zavod za norme, www.hzn.hr)*. Prof. Zečić is currently a full-time professor at the Faculty of Forestry, University of Zagreb and is the head of the Laboratory for the testing of properties of solid biofuels established within the Faculty. The discussion took place on Thursday 6 June at REGEA premises.

REGEA is also active within the Technical Committee 238 as a member and the two workshops/training events organised within the SolidStandards project (first on wood pellets, second on wood chips) were in fact organised together with representatives of TC238 and were held at the premises of the Faculty of Forestry. In that regard, REGEA was prior to the discussion already familiar with the status of solid biofuels standardisation in Croatia and thus the received comments and suggestions were mostly in the form of minor adjustments and data checking.

Thus it can be concluded that the results and opinions presented in this position paper reflect also those of the Technical Committee 238 on solid biofuels.

6. Summary of national industry needs

The market for solid biofuels in Croatia is at time of the writing of this position paper (June 2013) still underdeveloped, which is confirmed by the fact that approximately 95% of the domestic production of wood pellets and a similar percentage of the production of wood chips is exported mostly to other EU countries. Considering that, Croatian solid biofuels (primarily wood pellets) producers are in part motivated to apply the EU standards and obtain relevant certificates (primarily ENPlus). However, based on direct communication and exchange of information with several Croatian solid biofuels producers, this is still not seen as a key issue in the near future.

Standardisation activities regarding solid biofuels are in Croatia carried out by the Technical Committee 238 on solid biofuels within the Croatian Standardisation Institute, which at present has 4 members representing the following institutions:

- Faculty of Forestry, University of Zagreb;
- Ministry of agriculture;
- Hrvatske šume Ltd.;
- North-West Croatia Regional Energy Agency.

Currently the most important need in order to widen the activities is to engage more representatives from other groups of stakeholders (solid biofuels producers, industry of wood fired boilers, consumers associations). However, this has proved to be a rather difficult task.